

In re: Kong et al.
Serial No.: 09/715,576
Filed: November 17, 2000
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REMARKS

The Office's § 103 Rejection Should be Withdrawn Because the Cited References, When Taken as a Whole, Fail to Identify the Problem Addressed by the Invention or the Solution Employed by the Invention

“[A] patentable invention may lie in the discovery of the source of a problem even though the remedy may be obvious once the source of the problem is identified. This is part of the ‘subject matter as a whole’ which should always be considered in determining the obviousness of an invention under 35 U.S.C. § 103.” *In re Spinnoble*, 405 F.2d 578, 585, 160 USPQ 237, 243 (CCPA 1969). The current application and claims address and solve a problem that is not identified or even inferred in the art of record. Specifically, the art of record fails to identify the axial, radial, and surface-to-surface temperature gradients that cause mechanical distortion in substrate wafers during deposition and the problems that result therefrom.

At best, the art of record only discusses what was already known regarding deposition temperatures: improving temperature distribution among a number of wafers improves the overall deposition process. Nothing is said about spacing opposing susceptors in a manner to eliminate temperature gradients that exist in an individual wafer. In other words, the art of record discusses temperature distribution on a “macro” scale whereas the application teaches how to solve temperature problems on a “micro” scale. Judicial precedent supports patentability of inventions such as this one where the applicant finds solutions to problems not identified in the prior art.

In *In re Spinnoble*, the claim at issue was directed to a plural compartment mixing vial wherein a center seal plug was placed between two compartments for temporarily isolating a liquid-containing compartment from a solids-containing compartment. The claim

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differed from the prior art in the selection of butyl rubber with a silicone coating as the plug material instead of natural rubber.

The prior art recognized that leakage from the liquid to the solids compartment was a problem, and considered the problem to be the result of moisture passing around the center plug because of microscopic fissures inherently present in molded or blown glass. The court noted that the inventor discovered the cause of the moisture transmission was through the center plug, not around it, and there was no teaching in the prior art which would suggest the necessity of selecting applicant's plug material which was more impervious to liquids than the natural rubber plug of the prior art. Thus, the court held that the applicant's invention was unobvious and patentable.

Similarly, there is no teaching in the art of record that suggests that axial and radial temperature gradients across a single wafer cause the mechanical distortions shown in Figure 5 of the application and the deposition problems resulting therefrom. Thus, Applicants' solution to this undiscovered problem is unobvious and patentable under *In re Spinnoble*.

In re Wiseman, 596 F.2d 1019, 201 USPQ 658 (CCPA 1979), is another case that is often cited when courts are analyzing the "problem/solution" issue. In *In re Wiseman*, the claims were directed to grooved carbon disc brakes where the grooves were provided to vent steam or vapor during braking action to minimize fading of the brakes. The claims were rejected as obvious over a reference showing carbon disc brakes without grooves in combination with a reference showing grooves in noncarbon disc brakes for the purpose of cooling the faces of braking members and eliminating dust, thereby reducing fading of the brakes. The court affirmed the rejection, holding that even if applicants discovered the cause of the problem, the solution would have been obvious from the prior art which contained the same solution for a similar problem.

The *In re Wiseman* case also supports patentability of the claimed invention because the art of record, unlike the art cited against the applicants in *Wiseman*, fails to even identify

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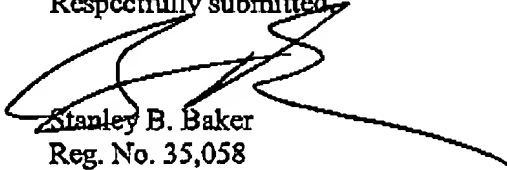
the problem solved by the invention (e.g., the problems created by axial and radial temperature gradients), much less suggest a similar solution.

In short, judicial opinion strongly supports the patentability of the claims as now pending. Applicants, respectfully request the allowance of the pending claims forthwith.

Summary of Amendments

The language added to Claims 1 and 21 regarding temperature gradients is based upon language found in the specification at page 5, lines 18 – 21 and page, 9, lines 10 – 14.

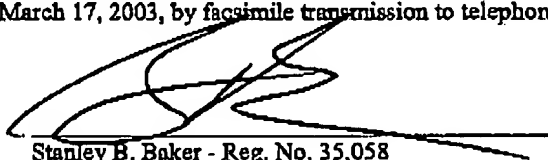
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